

REMARKS

The Examiner is thanked for the thorough examination and search of the subject patent application and for finding patentable material in the claims.

Claims 11-13, 15, 17, 19-20, 23-25, 42-58, 60-71, 73-74, 102-107, 109-111, 117-121, 123-129, 131-141, 143-145 are pending, wherein Claims 1-13, 15, 17, 19-20, 24-25, 42-48, 50-58, 61-65, 67-71, 73-74, 102-107, 109-111, 117-121, 123-129, 131, 133-141, 144-145 have been currently amended.

The making final of the restriction requirement is noted. Non-elected claims are hereby canceled. Applicants reserve the right to file a divisional application to the non-elected claims at a later date.

Response to Claim Rejections under 35 U.S.C. 112

In Claims 11, 70 and 134, “separating said substrate” is amended to “separating said substrate into multiple portions”. Withdrawal of Claim Rejection under 35 USC 112 is respectfully requested.

Response to Claim Rejections under 35 U.S.C. 102 and 103

Applicants respectfully traverse the rejections for at least the reasons set forth below.

Response to Claims 63-71 and 73-74

Reconsideration of Claims 63, 65, 66, 68, 70 and 71 rejected under 35 U.S.C. 102(e) as being anticipated by Gaynes et al. (US 6,165,885) is requested based on Amended Claim 63 and on the following remarks.

=====

As amended, independent claim 63 is recited below:

63. A method of forming an electronic package comprising the steps of:
 joining a die and a substrate, wherein an opening in said substrate exposes a
topmost patterned circuit layer of said die; and
 depositing a conductive material into said opening, wherein said conductive
material is used to connect said topmost patterned circuit layer to an external circuitry.

=====

Applicants respectfully assert that the method claimed in claim 63 patentably distinguishes over the citation by Gaynes et al. (US 6,165,885).

Gaynes et al. teach that a method for forming an electronic package comprises joining a wafer and a substrate. ~ *See Steps 100 and 120 in FIG. 1, lines 58-61, col. 10, line 66, col. 12 through line 2, col. 13, and lines 18-20, col.16* ~ However, Gaynes et al. fail to teach, hint or suggest the step of joining a die, not a wafer, and a substrate, which is claimed in claim 63.

Gaynes et al. teach that "In step 128 the wafer is diced into a plurality of integrated computer chips. This step may be performed anywhere in the process of FIG. 1, but preferably

done at the end to allow the entire wafer to be simultaneously processed in the method of the invention” ~ *See lines 46-50, col. 17* ~ However, Gaynes et al. fail to teach, hint or suggest the detailed packaging steps if the step of dicing the wafer is not performed at the end. There are so many choices to put step 128 between steps 100 and 102, steps 102 and 104, steps 104 and 106, steps 106 and 108, steps 108 and 110, steps 110 and 112, steps 112 and 114, steps 114 and 116, steps 116 and 118, steps 118 and 120, steps 120 and 122, steps 122 and 124, or steps 124 and 126. Based on Gaynes’s vague disclosure, those skilled in the art should not immediately think of other possible steps if step 128 is not performed at the end. Moreover, Gaynes et al. fail to teach, hint or suggest the concept that a die, not a wafer, can be joined with a substrate.

For at least the foregoing reasons, applicants respectfully submit independent claim 63 patently distinguishes over the prior art references, and should be allowed. For at least the same reasons, dependent claims 64-71 and 73-74 patently define over the prior art as well.

Response to Claims 127-129 and 131-133

Reconsideration of Claims 127, 129, 132 and 133 rejected under 35 U.S.C. 102(e) as being anticipated by Gaynes et al. (US 6,165,885) is requested based on Amended Claim 127 and on the following remarks.

=====

As amended, independent claim 127 is recited below:

127. A method of forming an electronic package comprising the steps of:

providing a die comprising a pad and a passivation layer, an opening in said passivation layer exposing said pad; and
joining said die and a substrate, an opening in said substrate exposing said pad.

Applicants respectfully assert that the method claimed in claim 127 patentably distinguishes over the citation by Gaynes et al. (US 6,165,885).

Gaynes et al. teach that a method for forming an electronic package comprises joining a wafer and a substrate. ~ *See Steps 100 and 120 in FIG. 1, lines 58-61, col. 10, line 66, col. 12 through line 2, col. 13, and lines 18-20, col.16* ~ However, Gaynes et al. fail to teach, hint or suggest the step of joining a die, not a wafer, and a substrate, which is claimed in claim 127.

Gaynes et al. teach that “In step 128 the wafer is diced into a plurality of integrated computer chips. This step may be performed anywhere in the process of FIG. 1, but preferably done at the end to allow the entire wafer to be simultaneously processed in the method of the invention” ~ *See lines 46-50, col. 17* ~ However, Gaynes et al. fail to teach, hint or suggest the detailed packaging steps if the step of dicing the wafer is not performed at the end. There are so many choices to put step 128 between steps 100 and 102, steps 102 and 104, steps 104 and 106, steps 106 and 108, steps 108 and 110, steps 110 and 112, steps 112 and 114, steps 114 and 116, steps 116 and 118, steps 118 and 120, steps 120 and 122, steps 122 and 124, or steps 124 and 126. Based on Gaynes’s vague disclosure, those skilled in the art should not immediately think of other possible steps if step 128 is not performed at the end. Moreover, Gaynes et al. fail to teach, hint or suggest the concept that a die, not a wafer, can be joined with a substrate.

For at least the foregoing reasons, applicants respectfully submit independent claim 127 patently distinguishes over the prior art references, and should be allowed. For at least the same reasons, dependent claims 128-129 and 131-133 patently define over the prior art as well.

Response to Claims 42-51

Reconsideration of Claims 42 and 50 rejected under 35 U.S.C. 102(e) as being anticipated by Blackshear (US 6,312,972) is requested based on Amended Claim 42 and on the following remarks.

Reconsideration of Claims 48 and 49 rejected under 35 U.S.C. 103(a) as being unpatentable over Blackshear (US 6,312,972) is requested based on Amended Claim 42 and on the following remarks.

=====

As amended, independent claim 42 is recited below:

42. A method of forming an electronic package comprising the steps of:
 depositing an adhesive material over a substrate;
 joining a die and said substrate using said adhesive layer, wherein an opening in
said substrate exposes said die; and
 after said joining said die and said substrate, separating said substrate into
multiple portions.

=====

Applicants respectfully assert that the method claimed in claim 42 patentably distinguishes over the citation by Blackshear (US 6,312,972).

Blackshear teaches that a method for forming an electronic package comprises depositing an adhesive material over a substrate 17, and joining a die 10, 11 or 12 and a substrate 17. ~ *See FIGS. 1-4, lines 24-28, col. 2, and lines 59-64, col. 3* ~ However, Blackshear fails to teach, hint or suggest the step of separating the substrate 17 into multiple portions, which is claimed in claim 42.

For at least the foregoing reasons, applicants respectfully submit independent claim 42 patently distinguishes over the prior art references, and should be allowed. For at least the same reasons, dependent claims 43-51 patently define over the prior art as well.

Response to Claims 52-58, 60-62, 102-107, 109-111, 117-121 and 123

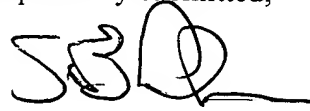
Independent claims 52, 102 and 117 have been amended. Reconsiderations for allowable subject matters to claims 52-58, 60-62, 102-107, 109-111, 117-121 and 123 are respectfully requested.

CONCLUSION

Some or all of the pending claims are believed to be in condition for Allowance, and that is so requested.

It is requested that should Examiner Owens not find that the Claims are now Allowable that he call the undersigned at 845 452-3204 to overcome any problems preventing allowance.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'SBA', with a long horizontal flourish extending to the right.

Stephen B. Ackerman, Reg. No. 37,761